

Curriculum Vitae
ANTONINA ROLL-MECAK

Investigator, Cell Biology and Biophysics Unit
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Professional Appointments

- 2009 – present Investigator, Cell Biology and Biophysics Unit, National Institute of Neurological Disorders and Stroke, National Institutes of Health, Bethesda
- 2009 – present Adjunct Investigator, National, Heart, Lung and Blood Institute, National Institutes of Health, Bethesda

Postdoctoral Training

- 2003 – 2009 Postdoctoral Fellow – Department of Cellular and Molecular Pharmacology, University of California, San Francisco

Education

- 2002 Ph.D., Molecular Biophysics - The Rockefeller University, New York
- 1996 B.E., *summa cum laude*, Chemical Engineering - The Cooper Union for the Advancement of Science and Art, Albert E. Nerken School of Engineering, New York
- 1992 Baccalaureate with high honors, Mathematics and Physics – Gheorghe Lazar Lyceum, Sibiu, Romania

Honors and Awards

- 2006 Burroughs Wellcome Career Award in the Biomedical Sciences
- 2006 K99/R00 NIH Pathway to Independence Award
- 2006 Larry L. Hillblom Foundation Fellowship Grant
- 2006 American Heart Association Scientist Development Award (declined)
- 2006 L'Oreal-AAAS For Women in Science Fellowship Award
- 2003 Damon Runyon Cancer Research Fund Postdoctoral Fellowship
- 2000 Burroughs Wellcome Fund Predoctoral Fellowship

1997	National Science Foundation Predoctoral Fellowship
1997	The Kosciuszko Foundation Fellowship Grant
1996	The Henry W. Reddick Fund Prize and Medal for meritorious work in mathematics
1996	William C. & Esther Hoffman Beller Fund for merit in engineering studies
1996	<i>Summa Cum Laude</i> , Cooper Union for the Advancement of Science and Art
1992	Full tuition scholarship from The Cooper Union for the Advancement of Science and Art
1992 - 1996	National Dean's List, The Cooper Union for the Advancement of Science and Art
1995	Sigma Xi Rudin Fellowship for Summer Research
1994 – present	Member, Tau Beta Pi National Engineering Honor Society
1993	The Cooper Union Engineering Summer Fellowship
1991	Honorable Mention, Mathematics Olympiad

Teaching and Mentoring

2007	Teaching assistant, Physiology course - Marine Biological Laboratory, Woods Hole
2003 - 2009	Informal mentoring of rotation students in the laboratory of Professor Ronald D. Vale, University of California, San Francisco
2001 - 2003	Adjunct Professor of Biology - The Cooper Union for the Advancement of Science and Art, New York Independently designed and taught: Introduction to Molecular and Cell Biology; Biochemistry
2001-2002	Informal mentoring of a Summer Undergraduate Research Fellow (SURF) in the laboratory of Professor Stephen K. Burley, Rockefeller University
1993 – 1995	Undergraduate tutor, mathematics and physics - The Cooper Union for the Advancement of Science and Art, New York
1994	Independently taught lectures in Nuclear Physics – The Cooper Union for the Advancement of Science and Art, New York
1993	Teaching assistant for Quantum Mechanics - The Cooper Union for the Advancement of Science and Art, New York

Professional Activities

Member, American Society for Cell Biology

Member, Tau Beta Pi National Engineering Honor Society

Member, The American Institute of Chemical Engineers

Member, American Association for the Advancement of Science

Reviewer: *Nature*, *EMBO J.*, *Proceedings of the National Academy of Sciences*, *Journal of Biological Chemistry*, *Journal of Cell Biology*.

Publications

12. Roll-Mecak, A. and Vale, R.D. Structural basis for microtubule severing by the hereditary spastic paraplegia protein spastin. 2008. *Nature*, 451(7176):363-7.

11. Roll-Mecak, A. and Vale, R.D. Making more microtubules by severing: a common theme of noncentrosomal microtubule arrays? 2006. *J. Cell. Biol.* 175 (6), 849-851.

10. Padyana, A. K., Qiu, H., Roll-Mecak, A., Hinnebusch, A. G., Burley, S. K. Structural basis for autoinhibition and mutational activation of eIF2 α protein kinase GCN2. 2005. *J. Biol. Chem.* 280(32), 29289-29299.

9. Roll-Mecak, A. and Vale, R. D. The Drosophila Homologue of the Hereditary Spastic Paraplegia Protein, Spastin, Severs and Disassembles Microtubules. 2005. *Curr. Biol.* 5(7), 650-55.

8. Roll-Mecak, A., Alone, P., Cao, C., Dever, T. E., and Burley, S. K. X-ray structure of translation initiation factor eIF2 γ : implications for tRNA and eIF2 α binding. 2004. *J. Biol. Chem.* 279(11), 10634-10642.

7. Shin, B-S., Maag, D., Roll-Mecak, A., Arefin, S.M., Burley, S.K., Lorsch, J.R., and Dever, T.E. Uncoupling the GTPase and Translational Activity of Initiation Factor eIF5B/IF2 by Mutations that Lower Ribosome Affinity. 2003. *Cell* 111, 1015-1025.

6. Deaconescu, A.M., Roll-Mecak, A., Bonanno, J.B., Gerchman, S. E., Kycia, H., William, B.F., and Burley, S.K. X-ray Structure of Saccharomyces Mitochondrial Matrix Factor 1 (Hmf1). 2002. *Proteins* 42(2), 431-436.

5. Dever, T.E., Roll-Mecak, A., Choi, S.K., Lee, J.H., Cao, C., Shin, B-S., and Burley, S.K. The Universal Translation Initiation Factor IF2/eIF5B. 2001 *Cold Spring Harbor Symp. Quant. Biol.* 66, 417-424.

4. Roll-Mecak, A., Shin, B-S, Dever, T.E., and Burley, S.K. Engaging the ribosome: Universal IFs of translation. 2001. *Trends Biochem. Sci.* 26(12), 705-709.

3. Roll-Mecak, A., Cao, C., Dever, T.E., and Burley, S.K. X-ray structures of the Universal Translation Initiation Factor IF2/eIF5B: Conformational Changes on GDP and GTP Binding. 2000. *Cell* 103, 781-792.

2. Choi, S. K., Olsen, D.S., Roll-Mecak, A., Martung, A., Remo, K. L., Burley, S. K., Hinnebusch, A. G., and Dever, T. E. Physical and functional interaction between the eukaryotic orthologs of prokaryotic translation initiation factors IF1 and IF2. 2000. *Mol. Cell. Biol.* 20, 7183-7191.

1. Lee, J.H., Choi, S.K., **Roll-Mecak, A.**, Burley, S. K., and Dever, T. E. Universal conservation in translation initiation revealed by human and archaeal homologs of bacterial translation initiation factor IF2.1999. *Proc. Natl. Acad. Sci. USA*. 96, 4342-4347.

Invited Talks

Yale University, New Haven – 2008
National Institutes of Health, NHLBI, Bethesda – 2008
University of Chicago, Chicago - 2008
University of Washington, Seattle – 2008
National Institutes of Health, NINDS, Bethesda - 2008
Northwestern University, Evanston - 2008
University of Colorado, Boulder - 2008
Laboratory of Molecular Biology, MRC, Cambridge - 2008
Johns Hopkins University, Baltimore - 2008
The Vollum Institute, Portland - 2008
University of Wisconsin, Madison - 2008
Fred Hutchinson Cancer Research Center, Seattle – 2008
University of California, Santa Cruz – 2007
Laboratory of Gene Regulation, NICHD, NIH, Bethesda – 2007
Institute of Molecular Biology, Academia Sinica, Taipei, Taiwan – 2006
Weill Medical College of Cornell University, New York – 2006
Institute for Molecular Pathology, Vienna, Austria – 2003
Mount Sinai School of Medicine, New York – 2003
Georgetown University, Washington D.C. – 2003
International Union of Crystallography Congress, Geneva, Switzerland - 2002
Bio-Optics course, Brooklyn Polytechnic, New York - 2002
University of Aarhus, Denmark – 2001
Division of Eukaryotic Gene Regulation, NIH, Bethesda – 2001
Wadsworth Center, Albany, New York - 2000